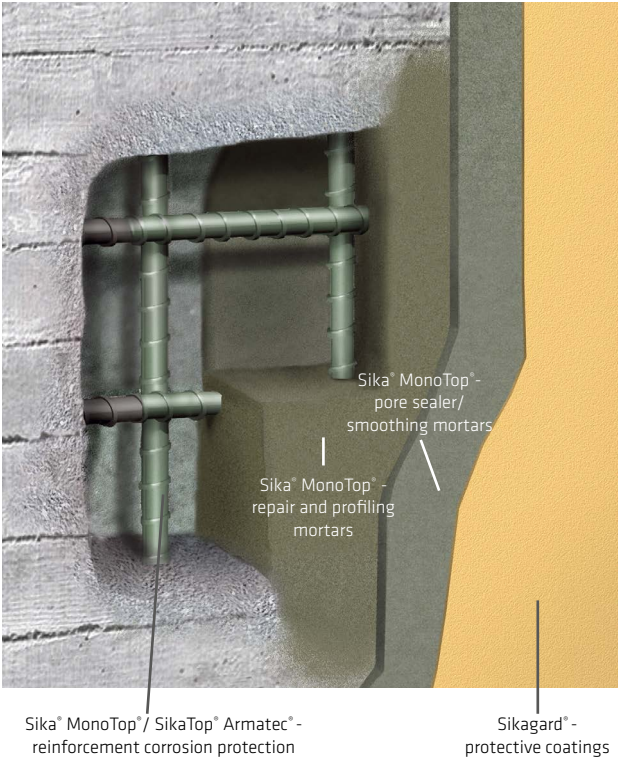
CONCRETE REPAIR SITE HANDBOOK

Hand Placed and Spray Applications

BUILDING TRUST

CONCRETE REPAIR SITE HANDBOOK

Hand Placed and Spray application

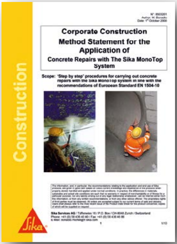


CONTENTS

HEALTH AND SAFETY

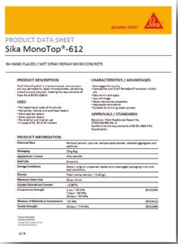
WORK SAFELY!

USEFUL DOCUMENTS


Construction
Corporate Construction Method Statement for the Application of Concrete Repairs with The Sika MonoTop System
Scope: 'Step by step' procedures for carrying out concrete repairs with the Sika MonoTop system in line with the recommendations of European Standard EN 1504-10

METHOD STATEMENT

- Sika® MonoTop® Systems
- Detailed step-by-step guide to concrete repair


PRODUCT DATA SHEET
Sika MonoTop®-612
R4 HAND PLACED / WET SPRAY REPAIR MICROCONCRETE
PRODUCT DESCRIPTION
CHARACTERISTICS / ADVANTAGES
USES
APPROVALS / STANDARDS
PRODUCT INFORMATION

PRODUCT DATA SHEET

- Product uses
- Substrate quality
- Substrate preparation
- Mixing ratio
- Application conditions and tools
- Pot life
- Curing treatment

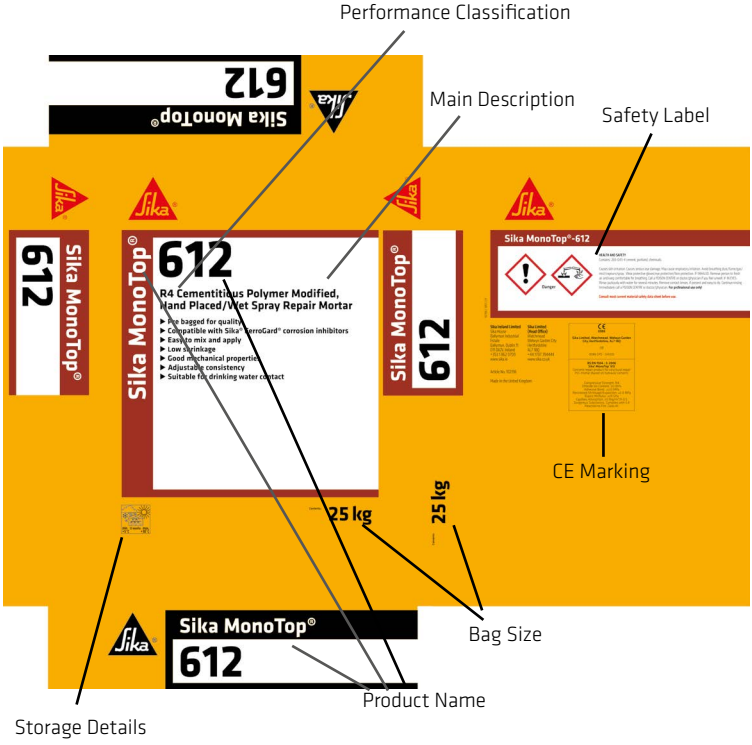

SAFETY DATA SHEET
Sika®MonoTop-612
SECTION 1: Identification of the substance/mixture and of the company/undertaking
SECTION 2: Hazards identification

SAFETY DATA SHEET

- Hazards
- First aid
- Emergency
- Ecology

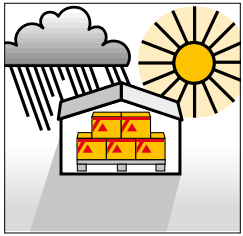
BAG LAYOUT

Example

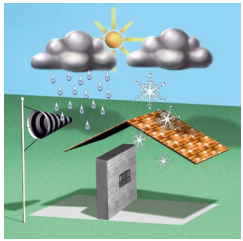


CLIMATE CONDITIONS

STORAGE
- Dry, cool conditions
- Undamaged original packaging



APPLICATION
Protect area from:
- Direct sunlight
- Wind
- Rain
- Frost



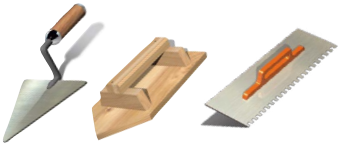
TEMPERATURE
Check acceptable limits:
- Ambient temperature
- Substrate temperature

EQUIPMENT

Hand Tools

Mixing tools

Mixing container



Application tools

Sponge

Brushes

DO'S AND DON'TS

DO'S

Use only clean potable water

Make sure tools are clean and well maintained

Remove only concrete as instructed by supervising officer or qualified engineer

Consult product data sheet before starting

DON'TS

Do not contaminate mixture with other chemicals

Do not mix powders from different products

Do not add more water than recommended

Do not mix and apply the product in direct sunlight

1. SUBSTRATE PREPARATION

SURFACE PREPARATION

- Mark defective concrete

CONCRETE REMOVAL

- Using a high pressure water jet, 1100 bar (large area)

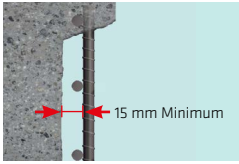
or

- With a hammer drill (medium area)

or

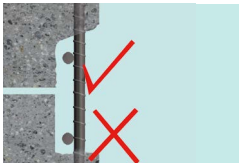
- Hammer and chisel (small patch repairs)

Remove tie wires, nails etc.
Remove only defective concrete as instructed.
Do not reduce structural integrity.



EXTENT OF CONCRETE REMOVAL

- Remove concrete minimum 15mm behind main bars



CORRECT SUBSTRATE PREPARATION

- Rougher surface (2mm minimum)
- Cut sides minimum 90˚ to avoid undercutting and maximum 135˚ to reduce debonding around edges
- Substrate shall be sound with no loose material

Inform a supervisor immediately if there are any cracks in the substrate.

2. REINFORCEMENT PREPARATION

CLEANING REINFORCEMENT

Remove **ALL**:

- Tie wires
- Mortar/concrete
- Rust/scale
- Other loose material

REMOVAL TECHNIQUES

1. Steel wire brush or hand/power tools

   Technique applicable only in carbonated concrete and under environmental constraints where techniques 2 and 3 cannot be used.

   - Reinforcement uniformly cleaned

2. Abrasive blast cleaning techniques
   - Reinforcement uniformly cleaned
   - If chlorides are present reinforcement should be cleaned with water afterwards

3. High pressure water jetting (1100 bar min)
   - Reinforcement uniformly cleaned

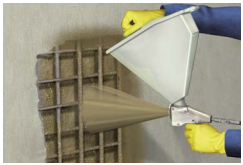
Inform a supervisor immediately of any badly damaged reinforcement.

3. REINFORCEMENT CORROSION PROTECTION

APPLICATION OF CORROSION PROTECTION

- Apply two 1mm thick layers (total 2mm minimum)

Allow time for the first coat to harden before applying the second coat. Allow application to dry before applying repair mortar.



APPLICATION TECHNIQUES

- Hopper spray for large applications

or

- Brush for small applications
- Inspect bars after to ensure full coverage

Use two brushes simultaneously to ensure full application behind bars.

4. BONDING PRIMER

APPLYING BONDING PRIMER

(if specified)

- Wet the substrate

- Wipe away excess water

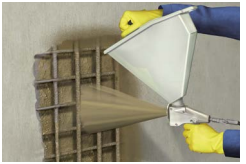
small area: with sponge

large area: with air pressure

APPLICATION TECHNIQUE

- For small patches brush firmly onto surface

- For large areas spray on with hopper gun



Point gun at different angles on the surface to ensure even application behind the bars.

5. REPAIR APPLICATION

By Hand

SURFACE PREPARATION

(if bonding primer not applied)

- Wet the substrate

- Wipe away excess water

small area: with sponge

large area: with air pressure

APPLICATION TECHNIQUE

- Press the repair mortar firmly into the repair area using a trowel and/or hand

Apply second layer when first layer is dry if application depth exceeds product's maximum layer thickness.

- Profile the surface and finish with a trowel

Finish the surface with a wooden or PVC trowel for best results. Do not spray additional water over the surface!

6. REPAIR APPLICATION

By Spray

SURFACE PREPARATION

- Wet the substrate

- Wipe away excess water

small area: with sponge

large area: with air pressure

APPLICATION TECHNIQUE

- Point nozzle 200mm to 500mm from surface

- Finish with PVC or wooden trowel

Make sure voids are filled behind bars. Point spray nozzle at different angles to the surface. If 2nd layer is required surface should not be too smooth.

7. SMOOTHING MORTAR

SURFACE PREPARATION

- Wet and clean the surface with water (180 bar)

SMOOTHING OR LEVELLING MORTAR

- Apply vertically using toothed trowel
- Apply with trowel approximate 45° to surface

Use different size toothed trowel for required layer thickness.

- When the first layer is hard, apply second layer

- Smooth surface using wooden trowel after product has set

0.25 - 4 hours

AFTER APPLICATION

CURING PROTECTION

Protect application from:

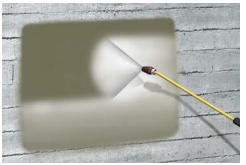
- Frost
- Wind*
- Rain*
- Sun*

* Apply as soon as possible after application to avoid surface cracking/crazing

CURING METHODS

- Plastic sheeting
- Fabric and water
- Other membranes

- If no subsequent coating is to be applied on the surface an approved curing agent could be used.



ADDITIONAL INFORMATION

CLEANING TOOLS

- Clean with water

Hardened material can only be removed mechanically

ENVIRONMENT

- Dispose of waste responsibly
- Separate recycling materials

ACCIDENTS

- Seek immediate medical attention in the event of an injury

MIXING

ONE COMPONENT SYSTEM

(eg Sika® MonoTop®)

- Add powder to water and mix for three minutes

TWO COMPONENT SYSTEM

(eg SikaTop®)

- Shake component A thoroughly and pour into a clean container
- Add in powder component C and mix for three minutes

Do not add extra water.

THREE COMPONENT SYSTEM

(eg Sika® EpoCem®)

- Shake component A + B separately
- Mix components A + B together

- Add A + B to powder component C and mix for three minutes

Adjust consistency to suit conditions using powder component C. Refer to product data sheet for more information.

SIKA REPAIR SYSTEMS

PRODUCT	Type	Application		BS EN 1504 Reference
Sika® MonoTop®-612	Repair Mortar	Hand	Wet spray	Part 3 - R4
Sika® MonoTop®-615	Repair Mortar	Hand	Wet spray	Part 3 - R3
Sika® Rapid Repair Mortar	Repair Mortar	Hand		Part 3 - R4
SikaCem®-133 Gunite S	Repair Mortar		Dry spray	Part 3 - R4
SikaCem®-133 F Gunite	Repair Mortar with fibres		Dry spray	Part 3 - R4
SikaCem®-133 CP Gunite	Repair Mortar low resistivity		Dry spray	Part 3 - R4
SikaCem®-133 CP Gunite	CP Overlay		Dry spray	Part 3 - R4
Sika® MonoTop®-614F	Repair Mortar	Flowable		Part 3 - R4
Sika® MonoTop®-610	Bonding Primer and Reinforcement Corrosion Protection	Hand	Spray	Part 7
SikaTop® Armatec®-110 EpoCem®	Bonding Primer and Reinforcement Corrosion Protection (chlorides)	Hand	Spray	Part 7
Sika® MonoTop®-620	Smoothing Mortar/ Pore Sealer	Hand		Part 2
Sikagard®-720 EpoCem®	Smoothing Mortar/ Pore Sealer	Hand		Part 2

HINTS AND ADVICE

Over Head Application

- Apply mortar tightly behind reinforcement until bars are covered

- Press firmly to ensure pores in concrete substrate are filled

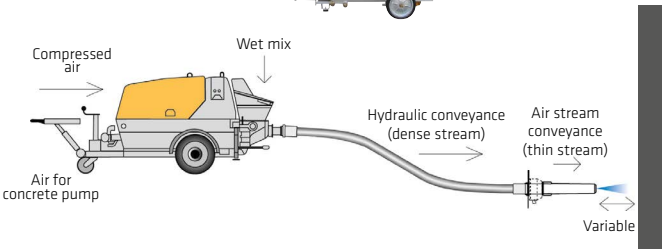
- From same end apply second layer in same direction as first
- Repeat layers until void is filled

- Smooth surface using wooden trowel

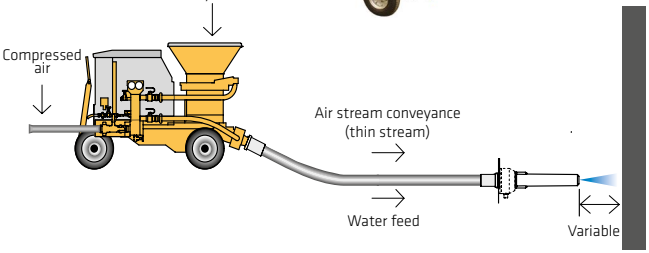
HINTS AND ADVICE

Spray Equipment

WET SPRAY PROCESS



DRY SPRAY PROCESS



SIKA FULL RANGE SOLUTIONS FOR CONSTRUCTION:

WATERPROOFING

CONCRETE

REFURBISHMENT

MERCHANT

SEALING AND BONDING

FLOORING

ROOFING

INDUSTRY

FOR MORE INFORMATION:

WHO WE ARE

Sika Limited and Sika Ireland Limited are part of the global Sika Group, specialising in the manufacture and supply of chemical based products. Sika have a leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing, and protecting in the building sector and the motor vehicle industry. Sika has subsidiaries in 97 countries around the world and manufactures in over 190 factories. With over 17,000 employees Sika generates annual sales of CHF 5.75 billion (£4.69bn). We are also committed to providing quality, service, safety and environmental care.

In the UK and Ireland, we provide market-leading solutions for concrete, waterproofing, roofing, flooring, refurbishment, sealing & bonding, and industry, and have manufacturing sites in Welwyn Garden City, Preston, Leeds and Dublin with more than 700 employees and a turnover of more than

bsi. ISO 9001 Quality Management — FM 12504
ISO 14001 Environmental Management — EMS 45308
OHSAS 18001 Occupational Health & Safety Management — OHS 585274

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WP/1K/Jan2018